

REMARKS

This amendment is submitted in response to the Office Action mailed on October 5, 2005, in which claims 1-5, 7-17, 19-23, 25-30, 33-38, 40-42, and 44 were rejected, and claims 6, 18, 24, 31, 32, 39, and 43 were objected to. With this amendment, claims 1, 2, 9, 35-37, and 41 are amended. Accordingly, claims 1-44 are presented for reconsideration and allowance.

I. Rejections under 35 U.S.C. § 102(a)

In the Office Action, claims 1-4, 9-15, 19, 22, 27-29, and 41 were rejected under 35 U.S.C. § 102(a) as being anticipated by Kotnis et al., U.S. Patent No. 6,355,196 ("the Kotnis patent"). As amended, independent claims 1, 9, and 41 each require that the material injected into the mold cavity be "injected as a liquified ribbon of material using an extrusion head" (claim 41 originally included this language, and is amended to remove the term "non-conductive"). The present invention involves injecting a liquified ribbon of material from an extrusion head into a plastic mold cavity at a low pressure and a controlled extrusion rate (page 5, lines 17-23; par 17, 32). An example of the liquified ribbon of material is shown in FIG. 3 of the present application. The controlled extrusion rate and low pressure allows the prototype part to be built with a non-reinforced plastic mold tool in an office-compatible environment (page 6, lines 1-6).

In contrast, the Kotnis patent teaches injecting material into a plastic mold cavity as a "molten mass" that is forced into the mold at high pressures (col. 8, lines 40-50). This is performed under high pressures to rapidly force the material into the mold cavity, which is similar to standard injection molding processes (col. 4, line 66 to col. 5, line 7). While the Kotnis patent does generally disclose injecting the material at a pressure as low as 1,200 psi, the material is rapidly injected as a "molten mass" to quickly fill the mold cavity with cycles times less than about two minutes (col. 5, lines 20-23; and col. 13, line 51 to col. 14, line 50). Such processing conditions are not office compatible. Accordingly, the Kotnis patent does not teach, disclose, or suggest injecting the material into the mold cavity from an extrusion head as a liquified ribbon. Accordingly, independent claims 1, 9, and 41, as amended, are not anticipated by the Kotnis patent. Similarly, claims 2-8, 10-34, and 42-44, which depend from claims 1, 9, 41, are also not anticipated by the Kotnis patent.

Independent claim 35 was amended to include the limitation that the plastic mold tool is built with the same additive process rapid prototyping machine that is used to inject the material to build the prototype part (see e.g., page 11, lines 16-19, page 12, lines 6-7 and 13-15). In contrast, the Kotnis patent does not teach, disclose, or suggest this limitation of claim 35. The Kotnis only discloses building a plastic mold component with computerized numerically controlled (CNC) machining, which is not an additive process rapid prototyping technique, and cannot be used to inject the material to form the prototype part. Accordingly, independent claim 35, as amended, is not anticipated by the Kotnis patent. Similarly, claims 36-40, which depend from claim 35, are also not anticipated by the Kotnis patent.

II. Rejections under 35 U.S.C. § 103(a)

Claims 5, 7, 8, 23, 25, 34, 42, and 44 were rejected under 35 U.S.C. § 103(a) as being obvious over the Kotnis patent. Additionally, claims 16, 17, 20, 21, 26, and 33 were rejected under 35 U.S.C. § 103(a) as being obvious over the Kotnis patent in view of Rosato's Injection Molding Handbook 3rd Ed. ("the Rosato's reference"); claim 30 was rejected under 35 U.S.C. § 103(a) as being obvious over the Kotnis patent in view of Gale et al., U.S. Patent No. 6,287,428 ("the Gale patent"); and claims 35-38 and 40 were rejected under 35 U.S.C. § 103(a) as being obvious over the Kotnis patent in view of Edwards et al., U.S. Patent No. 5,938,876 ("the Edwards patent").

As discussed above, the Kotnis patent does not teach, disclose, or suggest injecting material into the mold cavity from an extrusion head as a liquified ribbon. As such, independent claims 1, 9, and 41 are also not obvious over the Kotnis patent, and claims 2-8, 10-34, and 42-44, which depend from claims 1, 9, and 41, are also not obvious over the Kotnis patent.

Additionally, the Rosato's reference, the Gale patent, and the Edwards patent do not disclose the requirements of claims 1, 9, and 41. The Rosato's reference only discloses injection molding processes, definitions, and process control techniques. The Rosato's reference does not disclose injecting the material as a liquified ribbon using an extrusion head. The Gale patent only discloses the use of selective laser sintering to form a mold, which is subsequently immersed into a container of a fiber pulp solution (col. 2, lines 49-58; and col. 6, lines 53-66). Thus, the Gale patent does not disclose the use of injection

molding. Similarly, the Edwards patent regards a method of manufacturing eyeglass lenses, and does not disclose how the lens material is placed within the molded cavity (col. 2, lines 39-41).

As a result, the Rosato's reference, the Gale patent, and the Edwards patent also do not teach, disclose, or suggest injecting the material into the mold cavity from an extrusion head as a liquified ribbon, as required by independent claims 1, 9, and 41. Therefore, independent claims 1, 9, and 41 are also not obvious over the Rosato's reference, the Gale patent, or the Edwards patent, taken alone or in view of the Kotnis patent. Similarly, claims 2-8, 10-34, and 42-44, which depend from claims 1, 9, and 41, are also not obvious over these references.

With respect to claim 35, as discussed above, the Kotnis patent does not teach, disclose, or suggest using the same additive process rapid prototyping machine to build the plastic mold tool inject the material to build the prototype part. Additionally, the Rosato's reference, the Gale patent, and the Edwards patent also do not teach, disclose, or suggest this limitation of claim 35. Therefore, claim 35 is also not obvious over the Kotnis patent, Rosato's reference, the Gale patent, or the Edwards patent, taken alone or together. Similarly, claims 36-40, which depend from claim 35, are also not obvious over these references.

CONCLUSION

Because the prior art made of record does not show, suggest, or teach all the limitations in claims 1-44, pending claims 1-44 are in condition for allowance. Favorable reconsideration and allowance of this application are respectfully requested.

Respectfully submitted,

KINNEY & LANGE, P.A.

Date: 01/04/06

By: Michael J. Pape

Michael J. Pape, Reg. No. 45,971

THE KINNEY & LANGE BUILDING

312 South Third Street

Minneapolis, MN 55415-1002

Telephone: (612) 339-1863

Fax: (612) 339-6580